

# THE COMING OF AGE OF DIGITAL PAYMENTS AS A FIELD OF EXPERTISE

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Digital payments are dramatically increasing around the world. Global non-cash payments grew by 8.9% in 2014 and mobile payments are projected to grow by a staggering 60.8% in 2015.<sup>1</sup> This rapid growth has largely been driven by technological innovation and the willingness of regulators to allow new specialist payment service providers the opportunity to operate without a banking license.<sup>2</sup> It has also been aided by the continued economic recovery of mature markets.<sup>3</sup>

Despite their rapid evolution, digital payments have not yet developed

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1. Taylee Lewis, *Australian Non-Cash Payments Accelerate*, FINTECH BUS. (Oct. 7, 2015), <http://www.fintechbusiness.com/payments/205-non-cash-payments-accelerate-globally>; Rebecca Merrett, *Mobile Payments to Grow 60.8% by 2015: Capgemini*, CIO (Oct. 1, 2014, 2:04 PM), <http://www.cio.com.au/article/556378/mobile-payments-grow-60-8-by-2015-capgemini/>.

2. See Ross Buckley & Louise Malady, *The New Regulatory Frontier: Building Consumer Demand for Digital Financial Services—Part I*, 131 BANKING L.J. 834 (2014) (stating that policy makers should increasingly focus on regulatory systems that promote financial inclusion in addition to traditional emphasis on safety and efficiency).

3. Lewis, *supra* note 1.

into a field of study separate from banking. While banks offer digital payment services, the nature of digital payments is very different from that of banking. Banks profit from taking risks and seek to build strong relationships with their customers.<sup>4</sup> On the other hand, digital payments providers seek to minimize risk and maximize the number of customers in their network, but are not as concerned with establishing deep relationships with their customers.<sup>5</sup> Technology is at the center of digital payments, while technology is less central to the business of banking. Approaching digital payments from within a traditional banking framework leads to overly burdensome regulation and hinders innovation.

Digital payments offer exciting opportunities for financial inclusion. In order to achieve their full potential, it is important that digital payments are recognized as a separate field of expertise, distinct from banking. This paper seeks to explore how the potential of digital payments can be fully realized by addressing some of the current barriers to their development and by discussing the merits of establishing digital payments as a unique profession. Shifting how digital payments are currently perceived could have a profound impact on the future of global financial services and how they are regulated.

Part One of this paper lays out the key differences between a banking and a payments mindset, within the historical context in which these fields of study have developed. Part Two then examines the main vision, information, and human capacity gaps that are presently limiting the pace of development of the digital payments space and how these issues can be addressed. This section draws upon information gathered through an extensive set of interviews conducted across the three main continents in the developing world, giving a global context to the issues discussed. Finally, Part Three argues that it would be beneficial for digital payments to emerge as a separate profession distinct from banking. In doing so we consider what might be the core elements of its identity and how a sense of a profession might emerge.

## I. DIGITAL PAYMENTS COMING FROM UNDER THE SHADOW OF BANKING

### A. *The Essence of Banking vs. Payments*

The essence of banking is taking calculated risks. These calculated risks may be idiosyncratic to individual bank customers as when banks give loans to entrepreneurs, betting that they will succeed. Calculated risks may involve broader economic or market conditions such as when banks give mortgages, betting that homeowners will not face a protracted unemployment spell and that property values will not drop precipitously.<sup>6</sup> Finally, calculated risks may

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4. See generally Natalya Martynova et al., *Bank Profitability and Risk-Taking* (IMF Research Dept., Working Paper No. 15/249, 2015), <http://www.imf.org/external/pubs/ft/wp/2015/wp15249.pdf> (describing profit incentives for varying levels of risk-taking among banks of various sizes).

5. See JONATHAN GREENACRE ET AL., CENTRE FOR INTERNATIONAL FINANCE AND REGULATION, *THE REGULATION OF MOBILE MONEY IN MALAWI* (Mar. 2014), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2491995](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2491995) (discussing strategic challenges facing digital payments providers and banks).

6. See generally CLIFFORD V. ROSSI, RESEARCH INST. FOR HOUS. AM., *ANATOMY OF RISK*

relate to banks' own balance sheets, as when they assume a timing and liquidity mismatch between their liabilities (a large chunk of which are immediately refundable deposits) and their assets (many of which are fixed term loans).<sup>7</sup> In this case, banks are betting that they will be able to meet depositors' probable requests for return of funds on a timely basis.<sup>8</sup>

Traditionally, banks profit from taking and managing such risks. That is not to say that bankers are inherently risk-loving; they often display a strong conservative bias.<sup>9</sup> This bias is a natural form of self-protection against excessive risk-taking.<sup>10</sup>

Calculating risks appropriately requires getting as complete an information base as possible on the underlying sources of risk.<sup>11</sup> This includes information on clients' present circumstances, future prospects, past track records, whom they work for, and with whom they work.<sup>12</sup> Bankers therefore seek to establish ongoing relationships with their customers as a way to capture further information.<sup>13</sup> Customers, in turn, welcome the sense of relationship as they seek to establish a reputation with their bankers.<sup>14</sup>

On the other hand, the essence of digital payments is offering transactional services to minimize the amount of risk.<sup>15</sup> Profitability comes from customer service and convenience, not taking risks on behalf of customers.<sup>16</sup>

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MANAGEMENT PRACTICES IN THE MORTGAGE INDUSTRY: LESSONS FOR THE FUTURE (May 2010), <http://www.rhsmith.umd.edu/files/Documents/Centers/CFP/AnatomyofRiskManagement.pdf> (discussing factors that go into mortgage risk calculus).

7. ANTHONY SAUNDERS & MARCIA MILLON CORNETT, *FINANCIAL INSTITUTIONS MANAGEMENT: A RISK MANAGEMENT APPROACH* 361 (8th ed. 2014); *see also* JASON LAMB & SACHA POLVERINI, BILL & MELINDA GATES FOUND., *ASSESSING RISK IN DIGITAL PAYMENTS: SPECIAL REPORT, FINANCIAL SERVICES FOR THE POOR* 31 (Feb. 2015), <https://docs.gatesfoundation.org/documents/Assessing%20risk%20in%20digital%20payments%20FSP.pdf> (finding that digital financial services do not introduce major new risks to existing financial and payments systems, but that new participants in the payments value chain do need to understand and manage risks).

8. *See* BASEL COMM. ON BANKING SUPERVISION, BANK FOR INT'L SETTLEMENTS, *BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS* 10 (June 2011), <http://www.bis.org/publ/bcbs189.pdf> (encouraging institutions to engage in frequent assessment of maturity mismatches).

9. *See generally* JOËL BESSIS, *RISK MANAGEMENT IN BANKING* 25 (4th ed. 2015) (providing an overview of how banks traditionally approach risk).

10. As the Global Financial Crisis attests, this self-protection is not always attained.

11. *See* JAMES M. WAHLEN ET AL., *FIN. REPORTING, FINANCIAL STATEMENT ANALYSIS, AND VALUATION* 338 (Cengage Learning 8th ed. 2015) (discussing the need for information and how to locate that information in a firm's financial statements).

12. *See generally* *Five Cs of Credit*, WELLS FARGO, <http://www.wellsfargo.com/financial-education/credit-management/five-c/> (last visited Mar. 17, 2016) (discussing what one large financial institution considers when extending credit).

13. *See* *Collecting Information FAQs*, BANK OF AM., <https://www.bankofamerica.com/privacy/faq/collecting-information-faq.go> (last visited Mar. 17, 2016) (articulating what information Bank of America collects in order to provide better banking products and service).

14. *See* Lewis, *supra* note 1 (providing a description of what digital financial inclusion looks like).

15. *See* LAMB & POLVERINI, *supra* note 7, at 9–11 (analyzing the risk model for digital transactions in developing economies).

16. *See generally* GREENACRE ET AL., *supra* note 5 (discussing strategic challenges such as a combination of low incomes and poor penetration of enabling devices like mobile phones limiting attempts to establish profitable business models in some markets).

Modern payment systems use two basic mechanisms to minimize risk.<sup>17</sup> The first mechanism is to conduct transactions on a funded basis. Customers can only engage in transactions with money they have, rather than on credit. At the wholesale level, real time gross settlement (RTGS) systems require participating banks to have an adequate balance in their settlement account.<sup>18</sup>

At the retail level, payment schemes like PayPal and M-PESA work on a pre-paid basis, and do not generally offer automatic overdrafts.<sup>19</sup> The second mechanism to minimize risk is to operate as close as possible to real time. The closer to real time that transactions are accounted for and settled, the less likely they are to become unfunded or give rise to disputes.<sup>20</sup>

For providers, being able to handle transactions on a funded basis and in real time is enormously liberating because it enables transactions with less well-known parties. It makes it possible to opt for mass-marketing channels, without having to worry as much about screening customers, although here know-your-customer protocol must still be applied.<sup>21</sup> It also makes it possible to engage in direct service channels, for instance offering cash in/cash out through a niche network of thousands of retail outlets.<sup>22</sup> This is not to say digital payments do not carry risks, but the aspiration is always to limit the risk.

Technology lies at the heart of transaction speed and certainty, and so it is not surprising that specialist payments companies have tended to emerge more from technology than banking backgrounds. That was as true for Western Union, which was founded in 1851 as the New-York and Mississippi Valley Printing Telegraph Company, as for PayPal and M-PESA a century and a half later.<sup>23</sup> Payment companies view technology as absolutely core to their business and see their business as having grown out of technological advances. Whereas banks tend to see technology as important but not involved in the

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17. See Buckley & Malady, *supra* note 2 (arguing policy makers should increasingly focus on regulatory systems that promote financial inclusion in addition to traditional emphasis on safety and efficiency—the two basic risk minimizing mechanisms).

18. See generally BANK OF ENG., A GUIDE TO THE BANK OF ENGLAND'S REAL TIME GROSS SETTLEMENT SYSTEM 13 (Oct. 2013), <http://www.bankofengland.co.uk/markets/Documents/paymentsystems/rtsguide.pdf> ("Applicants will be required to provide the necessary *intraday liquidity/collateral* to support their settlement business.").

19. Alsi Demirtüç-Kunt & Leora Klapper, *Measuring Financial Inclusion: Explaining Variation in Use of Financial Services Across and Within Countries*, 2013 BROOKINGS PAPERS ON ECON. ACTIVITY 279, 310–11.

20. THERESA WARD, STRATEGIES FOR REDUCING THE RISK OF ECOMMERCE FRAUD 5 (Oct. 2010), <https://www.firstdata.com/downloads/thought-leadership/ecommercefraudwp.pdf>.

21. Jonathan Camhi, *Taking the Next Step in KYC and AML Compliance*, INFORMATIONWEEK (Mar. 05, 2014, 5:09 PM), <http://www.banktech.com/compliance/taking-the-next-step-in-kyc-and-aml-compliance/d-d-id/1296879>.

22. See Bruce Rogers, *Who Is Leading the Digital Mobile Payment Influence Battle?*, FORBES (Mar. 18, 2014, 10:28 AM), <http://www.forbes.com/sites/brucerogers/2014/03/18/who-is-leading-the-digital-mobile-payment-influence-battle/#389e54157646> (describing the leaders of the mobile ecommerce industry).

23. Steven Bertoni, *Can PayPal Beat Apple, Google, Amazon and Icahn in the Wallet Wars?*, FORBES (Feb. 12, 2014, 6:00 AM), <http://www.forbes.com/sites/stevenbertoni/2014/02/12/can-paypal-beat-apple-google-amazon-and-icahn-in-the-wallet-wars/#23a3cd92638a> (illustrating how technology is at the very heart of the payment service industry and a contentious source of competition amongst the industry's largest players).

origins of their business and not absolutely core.<sup>24</sup> For banks, access to information and the capacity to manage risk is core, and these may often, but not necessarily always, come with better transactional platforms.<sup>25</sup>

Digital payments are inherently less dependent on customer credit evaluations; the business tends to be much more transactional and less relationship-based than banking.<sup>26</sup> This is not to say that customer relationships are unimportant. As in any other business, retaining existing customers is generally less expensive than acquiring new ones, so there is a strong business compulsion to forge good customer relationships. But the strength of customer relationships does not in itself create the possibility of better service in the way that a strong banking relationship can enable a customer to get more credit.<sup>27</sup>

In payments, the quality or depth of individual customer relationships matters less. Instead, the number and breadth of customers matters more. This is because payments can only be understood in the context of a network, and the size and breadth of the user base are defining characteristics of the network itself.<sup>28</sup> Payment systems are subject to strong network effects (the more users on it, the more valuable the service is to any given user) and operate in a multitude of two-sided markets (there need to be buyers and merchants, bill payers and billing companies, wage earners and employers).<sup>29</sup>

This is not necessarily the case with banking: there may be scale effects because serving more customers is cheaper than serving few, but one customer does not directly benefit from there being a large number of other bank customers.<sup>30</sup> Banking is fundamentally about the functioning of institutions (how they manage risks and build enduring customer relationships), whereas

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24. See Olivier Denecker, Sameer Gulati & Marc Niederkorn, *The Digital Battle That Banks Must Win*, MCKINSEY & COMPANY (Aug. 2014), <http://www.mckinsey.com/industries/financial-services/our-insights/the-digital-battle-that-banks-must-win> (comparing the strategies and respective resources of banks and digital payment providers).

25. See Henk Broeders & Somesh Khanna, *Strategic Choices for Banks in the Digital Age*, MCKINSEY & COMPANY (Jan. 2015), <http://www.mckinsey.com/industries/financial-services/our-insights/strategic-choices-for-banks-in-the-digital-age> (acknowledging banks' need to become digitally proficient or "risk entering a decline similar to laggards in other industries" and that "[r]evenues and profits will migrate at scale toward banks that successfully use technologies to automate processes, create new products, improve regulatory compliance, transform the experiences of their customers and disrupt key components of the value chain. Institutions that resist digital innovation will be punished by customers, financial markets and—sometimes—regulators.").

26. See Denecker, *supra* note 24 (stating that "emerging nonbank competitors operate at a higher level of operational activity" in fraud detection).

27. See generally Aditi Patanjali, *Road Map for Financial Inclusion in India*, 25 J. BANKING & FIN. L. & PRAC. 26 (2014) (discussing the positive relationship of credit and development).

28. Rich Napolitano, *Five Characteristics of the Network of the Future*, ENTER. NETWORKING PLANET (June 23, 2015), <http://www.enterprisenetworkingplanet.com/datacenter/five-characteristics-of-the-network-of-the-future.html>.

29. Ross Buckley & Ignacio Mas, *Different Worlds: Why Digital Payments Should Not Be Regulated as an Offshoot of Banking*, NEXTBILLION (Sept. 9, 2015), <http://nextbillion.net/different-worlds>; see also Buckley & Malady, *supra* note 2 (noting that a low uptake and inactive users are common in the roll out of mobile money in some emerging countries and that understanding consumer demand may be a complex challenge).

30. Buckley & Mas, *supra* note 29. There is a perverse way in which the total number of bank customers might affect the value of the banking relationship for individual bank customers: if the bank becomes too-big-to-fail the bank's size leads to an implicit guarantee of a government bail-out.

payments is more about the functioning of ecosystems (who is in the ecosystem and how big is the ecosystem).

These differences in mindset between banking and payments carry over as differences in their terminology. In banking (and general usage) you do a credit transaction when you pay for something with borrowed funds (i.e., credit as a trust that an external party is placing in you).<sup>31</sup> In payments, confusingly, a credit transaction is one that is coming off the balance in your account (i.e., credit as an entry on the asset side of your own balance sheet).<sup>32</sup> Also, bankers refer generically to *credit risk* as the sum of all risks that bear on someone else's ability and willingness to repay. Payments people tend to refer to this as *counterparty risk*.<sup>33</sup>

### B. Bankers Doing Payments

The risk-minimization mechanisms mentioned earlier for payments do not apply very well in the case of the check. The prototypical payment instrument of yesteryear: checks may be unfunded at the moment in which they are written and exchanged, and they do not clear in anywhere near real time. But this proves the argument: checks were payment instruments invented and promoted by bankers. Checks are a feature of bank accounts rather than a self-standing payment service. The long clearing time on checks generates greater settlement risk for customers, but may enhance profitability in the form of the free float for the banks. As a result, bankers have been slow to reduce check-clearing times. For bankers, again, risk (in this case, the customers') is something to be managed and profited from, not necessarily minimized.

The credit card, another prime retail payment instrument, incorporates clear roles for banking and payment organizations along the above lines. Issuing banks underwrite their customers' credit balances, and payment processors take those balances and settle them against the accounts of merchants and other payees.<sup>34</sup> From a payments perspective, credit card transactions are funded because a bank is ready to supply the funds to the payer.

The cases of checks and the credit cards show the ambivalent attitudes banks have traditionally shown to payment service innovation.<sup>35</sup> Banks subsumed the checkbook within their broader account offering and managed the payment risks that arose (bounced checks) using traditional credit

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31. See LAMB & POLVERINI, *supra* note 7 (discussing how banking and credit card transactions work).

32. *Id.*

33. *Id.* It has additionally been argued that lack of common terminology and frameworks for identifying risk associated with successful digital financial services is a complicating factor. *Id.*

34. Alyssa Gregory, *Small Business and Credit Card Underwriting*, CONNECT (June 12, 2014), <http://www.usbankconnect.com/article/small-business-credit-card-underwriting>; see also *How a Credit Card Is Processed*, CREDITCARDS.COM (2013), <https://www.creditcards.com/credit-card-news/assets/HowACreditCardIsProcessed.pdf> (mapping out the credit card processing procedure).

35. See Ignacio Mas, *Shifting Branchless Banking Regulation from Enabling to Fostering Competition*, 30 BANKING & FIN. L. REV. 179, 179–80 (2015) (discussing banks' unwillingness to change platforms).

management techniques.<sup>36</sup> When a visionary among them invented the credit card (originally as BankAmericard by Bank of America), the sponsoring bank failed to grasp the potential and turned it over to an industry association.<sup>37</sup>

This is not to say that bankers do not see payments as their business, as they do, but bankers have the banking ethos of managed risks and the idea that acceptance of risks entitles them to profit. This logic started shifting in the run-up to the recent global financial crisis when banks started a booming business in credit origination without keeping the corresponding risk on their books, and especially in the wake of the crisis, when they became pathologically cautious about risks.<sup>38</sup> Consequently, banks have been more eager to embrace transactions, and the fees they generate, as a source of profitability.<sup>39</sup>

Nowadays, banks typically derive more than a third of their total income from fees.<sup>40</sup> Some fees are intended to be punitive (e.g., for insufficient funds or bounced checks), some are associated with the sale of new financial services to their customers (e.g., mortgage or insurance brokerage fees), but many have to do with broadening the transactional services—and in particular the payment services—they offer to their customers.<sup>41</sup> Banks are not ready to concede the payment business to payment specialists.<sup>42</sup>

### C. *Breaking the Payment Innovation Floodgates*

Banks have traditionally been slow to develop digital payment services with the levels of convenience and certainty that customers demand. Banks are constrained by their institutional structure, culture, policies, and mindset. While banks have labored under these constraints, a host of new players have entered the space in the last decade. The new players operate in innovative ways with lean business models focusing on a transaction model of high

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36. See generally *Credit Risk Management*, FEDERALRESERVE.GOV, [http://www.federalreserve.gov/bankinforeg/topics/credit\\_risk.htm](http://www.federalreserve.gov/bankinforeg/topics/credit_risk.htm) (last visited Mar. 17, 2016) (defining credit risk and containing numerous links to articles and references related to credit risk management techniques).

37. SUJIT CHAKRAVORTI, FED. RESERVE BANK OF CHI., *WHY HAS STORED VALUE NOT CAUGHT ON?* 29 (May 2000), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=294516](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=294516).

38. David Tennant & Richard Sutherland, *What Types of Banks Profit Most from Fees Charged? A Cross-Country Examination of Bank-Specific and Country Level Determinants*, 49 J. BANKING & FIN. 178, 181–83 (2014).

39. Shayndi Raice & Alan Zibel, *Regulators Turn Up Heat Over Bank Fees*, WALL ST. J. (June 11, 2013, 12:06 AM), <http://www.wsj.com/articles/SB10001424127887324904004578537844064246464> (“U.S. regulators are stepping up scrutiny of overdraft fees charged by banks, a big revenue stream that is helping the industry lessen the hit caused by low interest rates and the sluggish economy.”).

40. Tennant & Sutherland, *supra* note 38, at 178.

41. See Daniel Bortz, *10 Annoying Bank Fees—and How to Avoid Them*, U.S. NEWS & WORLD REP. (Aug. 10, 2012, 10:45 AM), <http://money.usnews.com/money/personal-finance/articles/2012/08/10/10-annoying-bank-feesand-how-to-avoid-them?page=2> (listing various types of punitive fees and fees related to transactional services); see also *Mortgage Servicing Fees*, BANK OF AM., <https://www.bankofamerica.com/home-loans/mortgage-servicing-fees.go> (last visited Mar. 16, 2016) (listing Bank of America’s fees charged in relation to mortgage services).

42. Buckley and Malady consider the possibility of partnerships between banks and non-banks and benefits that may emerge from such a combination. Buckley & Malady, *supra* note 2. In addition to financial inclusion, these include strengthening of existing products and services, improved access for banks to technological expertise and a reduction in regulatory concerns. *Id.*

volume and low costs. These new players come from diverse backgrounds—from large mobile operators and retailers to tiny specialist Internet start-ups. Nonetheless, they all share the technology focus that enables transactions to happen fast, with as few clicks as possible, anytime and anywhere. The digital payments sector has grown beyond all recognition and continues to evolve fast.<sup>43</sup>

The innovation floodgates are being torn asunder by two main forces. From a technology standpoint, the Internet and smartphones make it possible to design rich and scalable solutions at a fraction of what it would have cost it a decade earlier. From a regulatory standpoint, there is a growing trend for regulators to allow new specialist payment service providers or e-money issuers the opportunity to get into the business without having to acquire a banking license or partner with a sponsor bank.<sup>44</sup>

Banking is centuries old, but the field of digital payments dates back only sixty years ago to the advent of credit cards.<sup>45</sup> With hindsight, we can identify at least four waves of innovation around digital payments. The first wave of payment innovators sought to ride on top of, rather than displace, banking services.<sup>46</sup> Such was the case with the credit associations, like VISA and MasterCard, that emerged in the 1950s and the Internet payment service providers, such as PayPal, that emerged in the late 1990s.<sup>47</sup> These systems rely on banks to conduct all customer due diligence and provide cash in/cash out services.<sup>48</sup> If you do not have a bank account, you simply cannot have a credit card or a PayPal account.<sup>49</sup>

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43. JUN LIU ET AL., SINGAPORE MGMT. UNIV., COMPETITION, COOPERATION AND REGULATION: UNDERSTANDING THE EVOLUTION OF THE MOBILE PAYMENTS TECHNOLOGY ECOSYSTEM 2 (Mar. 3, 2015), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2573900](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2573900). Among the ten action areas of the Global Partnership for Financial Inclusion is a commitment to expand opportunities for innovative technologies to expand financial inclusion further. GLOBAL P'SHIP FOR FIN. INCLUSION, 2014 FINANCIAL INCLUSION ACTION PLAN 2 (Sept. 2, 2014) [hereinafter ACTION PLAN], [http://www.gpfi.org/sites/default/files/documents/2014\\_g20\\_financial\\_inclusion\\_action\\_plan.pdf](http://www.gpfi.org/sites/default/files/documents/2014_g20_financial_inclusion_action_plan.pdf).

44. See generally Buckley & Malady, *supra* note 2, at 834 (discussing regulators' growing need to account for non-banking entities when regulating the provision of financial services).

45. See generally Ben Woolsey & Emily Starbuck Gerson, *The History of Credit Cards*, CREDITCARDS.COM, <http://www.creditcards.com/credit-card-news/credit-cards-history-1264.php> (last visited Mar. 16, 2016) (providing a general overview of the history of credit cards).

46. See Jeremy M. Simon, *Visa: A Short History*, CREDITCARDS.COM, <http://www.creditcards.com/credit-card-news/history-of-visa-1273.php> (last visited Mar. 16, 2016) (describing Visa's early practices of entering into license agreements with banks across America).

47. See *id.* (describing Visa's early practices of entering into license agreements with banks across America); see also *Key Milestones*, MASTERCARD, <https://www.mastercard.us/en-us/about-mastercard/who-we-are/history.html> (last visited Mar. 17, 2016) (listing "A group of banks creates the Interbank Card Association (ICA)" as the company's first key milestone); *PayPal Inc. History*, FUNDINGUNIVERSE, <http://www.fundinguniverse.com/company-histories/paypal-inc-history/> (last visited Mar. 17, 2016) (describing PayPal's formation via merger with an online banking entity).

48. See generally Juan Rodriguez & Laura Mohammad, *Banks Still Rely on Branches to Start Accounts*, CREDITCARDS.COM, <http://www.creditcards.com/credit-card-news/banks-originate-accounts-online-1701.php> (last visited Mar. 17, 2016) (explaining that many financial institutions embracing online transactions continue to rely on banks for crucial client services).

49. See DAN RADCLIFFE & RODGER VOORHIES, BILL & MELINDA GATES FOUND., A DIGITAL PATHWAY TO FINANCIAL INCLUSION 2 (Dec. 2012), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2186926](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2186926) (illustrating the extent of the so-called cash-digital divide, with only 24% of adults in sub-Saharan Africa and 33% of adults in South Asia having an account at a formal financial institution, compared to 89% of adults in

A second wave of payment innovators sought to stand alongside banks and even became a direct competitor to them. Their innovation was to go beyond the purely digital and establish a brick-and-mortar network of stores where customers could complete their registration and conduct cash in/cash out transactions. These were the mobile money systems that emerged in a number of developing countries following the launch of Smart Money in the Philippines and epitomized by M-PESA in Kenya. Now, a person can be part of a digital payment network even if he or she does not have a bank account.<sup>50</sup>

A third wave of payment innovators has been making headlines in the last five years, mainly in developed countries, the United States in particular. Payment innovators are seeking to unbundle the payments landscape and entrench themselves in particular stages of the payments value chain. Payment companies depend on other players in the ecosystem to do the rest, but through the bottleneck control of their stage they seek to exert a major control over their partners and have substantial influence on the development of the market. Examples include Square, for low cost merchant payments; Google Wallet and Apple Pay for payment applications; and Stripe as an integrated suite of application programming interfaces (APIs) or *hooks* into a host of payment options for businesses.<sup>51</sup>

A fourth wave of payment innovators is now emerging, with a much more disruptive agenda: they seek to lay an entirely new foundation for financial transactions that is based on decentralized trust, peer-to-peer networks running on standard internet infrastructure, and open source protocols managed by the community of users. This is the promise of the new cryptocurrency platforms, such as Bitcoin and Ripple.<sup>52</sup> These platforms may enable the creation of a host of new players that will not be satisfied just to rival banks, but will seek to displace banks altogether.<sup>53</sup>

## II. IS THERE A GLASS CEILING FOR DIGITAL PAYMENTS?

In this section we review some key gaps that may be limiting the development of digital payments as a distinct field, with a particular focus on inclusive solutions for the poor in developing countries. We distinguish

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high-income economies).

50. See Ignacio Mas & Daniel Radcliffe, *Mobile Payments Go Viral: M-PESA in Kenya*, 32 CAPCO INST. J. FIN. TRANSFORMATION 169, 181 (2011) (discussing the ability of users of the M-PESA system to make payments to even non-registered users, thus eliminating the need for a bank account); see also Ignacio Mas & Olga Morawczynski, *Designing Mobile Money Services: Lessons from M-PESA*, INNOVATIONS, Spring 2009, at 77. (discussing the nature of M-PESA as an open platform for money services that do not rely on users having bank accounts).

51. Such payment applications testify to the existing and growing presence of data powerhouses and set the stage for transition to the fourth wave of innovation.

52. Rhys Bollen, *The Legal Status of Online Currencies: Are Bitcoins the Future?*, 24 J. BANKING & FIN. L. & PRAC. 272 (2013).

53. *Id.*; see also Ignacio Mas & David Porteous, *Pathways to Smarter Digital Financial Inclusion*, 42 CAPCO INST. J. FIN. TRANSFORMATION 47 (2015) (showing how the rising power of data is opening up the financial services space to a new breed of innovative players able to collect and distill data into actionable credit information).

between: (i) vision gaps, which limit the field's aspirations;<sup>54</sup> (ii) information gaps, which limit the field's potential to learn and explore new ideas,<sup>55</sup> and (iii) capacity gaps, which limit the ability to successfully implement and grow new deployments in the field.<sup>56</sup> These gaps tend to limit the impact of innovations at the individual organizational and sector levels.<sup>57</sup>

We frame this discussion around some hypotheses we have developed on the nature of these gaps. We conducted an extensive set of interviews with key industry participants and observers in three emerging countries, to discuss these hypotheses in terms of their validity as well as what might be done to address them. We chose three countries—Pakistan, Peru, and Rwanda—where digital payments are receiving substantial policy attention and there are serious initiatives underway to implement digital payment platforms. These countries also represent a geographic distribution across the three main continents in the developing world.<sup>58</sup>

#### *Vision gaps in digital payments*

<i>From push to pull approaches</i>	Many approaches today are still predicated on <i>pushing</i> consumers to adopt digital payment platforms, instead of pulling consumers through meeting real demand. This tends to lead to wasted resources and disappointed consumers. Experience shows us it is not enough to lower the cost of service by employing scalable technologies and to enhance customer convenience by rolling out ubiquitous agent networks. There need to be complementary <i>pull</i> approaches that attract excluded or under-served customers to seek out digital financial services and become known by financial service providers. Financial services are rarely if ever desired for their own sake, so these pull propositions will likely be oriented towards solving daily problems which people experience as consumers, as members of communities and social networks, or as they conduct their business. <sup>59</sup> Customers need to be placed at the center of product design. <sup>60</sup>
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54. *The Gaps in Digital Financial Inclusion Today*, DIGITAL FRONTIERS INST., <http://digitalfrontiersinstitute.org/the-gaps-in-digital-financial-inclusion-today/> (last visited Mar. 16, 2016).

55. *Id.*

56. *Id.*

57. *Id.*

58. See Demirgüç-Kunt & Klapper, *supra* note 19 (finding only half of all adults in the world have bank accounts, with cost, documentation, and documentation requirements among key barriers to use of bank accounts).

59. See Mas & Porteous, *supra* note 53, at 58 (discussing the “push” and “pull” approaches and their relative benefits and disadvantages).

60. Buckley & Malady, *supra* note 2.

<p><i>From digitizing payments to digitizing money</i></p>	<p>While low-income people in some leading developing countries have demonstrated a strong interest in using digital payment platforms to send money remotely, buy airtime, and pay utility bills, in reality most digital accounts remain substantially empty. It is common practice globally for low-income recipients to withdraw any digital money they receive immediately and in full.<sup>61</sup> Most digital payments in fact start and end in cash, so for these customers digital payment service providers make cash more efficient, rather than displacing cash.<sup>62</sup> We are much further ahead in <i>digitizing payments</i> than we are in <i>digitizing money</i>.<sup>63</sup> This matters because while digital money accounts remain empty, people are not likely to begin paying digitally in their daily lives. The volumes of merchant payments will remain lackluster as long as digital money only addresses the means-of-payment function and ignores the storage of value function of money.<sup>64</sup></p>
<p><i>From walled gardens to integrated systems</i></p>	<p>Most digital finance systems are still conceived as walled gardens, so total market-level network effects are untapped and many providers remain sub-scale.<sup>65</sup> Most established digital finance players are comfortable competing on the basis of their network scale and reach (more customers, more agents), and are reluctant to interconnect or share infrastructure with smaller players, for fear of losing their scale advantage.<sup>66</sup> The result is that network effects are fragmented, with no player benefiting from the total scale in the market; customers and agents are forced to seek multiple accounts with multiple providers if they want to work across the market, which is inconvenient and costly. This particularly limits business payment solutions (bill and bulk payments), as businesses</p>

61. See Demirgüç-Kunt & Klapper, *supra* note 19, at 299 (analyzing the range of motives and degree of activity by individuals in relation to their bank accounts).

62. ACCENTURE, DIGITAL PAYMENTS TRANSFORMATION: FROM TRANSACTIONS TO CONSUMER INTERACTIONS 5 (2013), [https://www.accenture.com/t20150707T195226\\_w\\_/us-en/\\_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries\\_5/Accenture-Digital-Payments-Transformation-From-Transaction-Interaction.pdf](https://www.accenture.com/t20150707T195226_w_/us-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries_5/Accenture-Digital-Payments-Transformation-From-Transaction-Interaction.pdf).

63. See *id.* (indicating substantial growth in digital payments worldwide); see also Demirgüç-Kunt & Klapper, *supra* note 19, at 299 (suggesting that many consumers in low-income countries don't use financial institutions and their related technology to manage their funds).

64. Ignacio Mas, *You Can't Go Cash-Lite on Empty Accounts: E-money vs. Cash*, CGAP (July 30, 2012), <http://www.cgap.org/blog/you-can%E2%80%99t-go-cash-lite-empty-accounts-e-money-vs-cash>.

65. See Stijn Claessens et al., *The Growing Importance of Networks in Finance and Its Effects on Competition*, in INNOVATIONS IN FINANCIAL AND ECONOMIC NETWORKS 109, 113–14 (Anna Nagurney ed., 2003) (describing the importance of global networks for financial institutions, the economies of scale that large financial institutions have, and the barriers to competition that large financial institutions impose).

66. *Id.*

	generally seek universal solutions that meet the needs of all their customers. <sup>67</sup>
<i>Payments separate from banking</i>	<p>Payment systems are the lifeblood of an economy, serving functions analogous to our bodies' arteries and veins, and banks have traditionally been heavily involved in delivering payment services.<sup>68</sup> However, we regulate banks heavily because for banks, risk and profit are typically directly correlated, so banks have a strong incentive to keep taking on ever higher levels of risk in the quest for ever larger profits.<sup>69</sup> As we have seen, this correlation does not hold for payments.</p> <p>Payments providers make higher profits by expanding their network, by charging higher fees, or by operating more efficiently—not by assuming greater risks.<sup>70</sup> So, we regulate payments systems to ensure that they operate effectively and do not overcharge.<sup>71</sup> The regulation of payments providers can be lighter than that of deposit-taking banks, as the incentives facing the provider are to deliver an efficient, reliable service and the regulator simply needs to limit fees if competition in the relevant market is inadequate to do so. In developing countries, regulators of digital payment systems are often well advised to maintain a watching brief in the early years and not move too quickly to regulate.<sup>72</sup> It is important the regulator keeps abreast of developments. It is equally important it does not stifle innovation and enables the digital payments sector to grow and thrive.</p>

67. INNOCENT EPHRAIM ET AL., FIN. SECTOR DEEPENING TRUST, THE NEXT DIGITAL FINANCE FRONTIER: FILLING THE ACCOUNTS 2 (2016), [http://papers.ssm.com/sol3/papers.cfm?abstract\\_id=1985587](http://papers.ssm.com/sol3/papers.cfm?abstract_id=1985587). Action area 4 of the G20's 2014 Financial Inclusion Action Plan specifically addresses interoperability, requiring mainstream financial inclusion in the work of standard setting bodies and other relevant global bodies and increase understanding of the interdependence of financial inclusion, stability, integrity, and consumer protection. ACTION PLAN, *supra* note 43, at 2.

68. Masashi Nakajima, *The Evolution of Payment Systems*, EUR. FIN. REV. (Feb. 12, 2012), <http://www.europeanfinancialreview.com/?p=2032>.

69. James Crotty, *If Financial Market Competition Is So Intense, Why Are Financial Firm Profits So High? Reflections on the Current "Golden Age" of Finance 5* (Int'l Working Grp. on Financialization, Working Paper No. 134, 2007), [http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1107&context=peri\\_workingpapers](http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1107&context=peri_workingpapers).

70. See Leena Rao, *How Venmo Plans to Make Money*, FORTUNE (Dec. 29, 2015, 10:00 AM), <http://fortune.com/2015/12/29/p2p-mobile-payment-venmo-paypal/> (explaining how Venmo and other digital payment companies plan to make a profit).

71. COMPETITION COMM., OECD, COMPETITION AND PAYMENT SYSTEMS 188 (June 28, 2013), <http://www.oecd.org/competition/PaymentSystems2012.pdf>.

72. See ANDREW SHENG, S.E. ASIAN CENT. BANKS RESEARCH AND TRAINING CTR., PAYMENT SYSTEMS IN DEVELOPING COUNTRIES: LESSONS FOR A SMALL ECONOMY 17 (1995), <http://www.seacen.org/GUI/pdf/publications/occasional/1995/OP19.pdf> (describing the importance of proper planning when introducing regulation into electronic payment systems in developing countries).

	So while banks are typically heavily regulated, for good reason, in their deposit-taking and lending functions, these reasons do not extend to the regulation of payments systems. The involvement of banks in both lending and payments often serves to muddy the regulatory waters because regulators can see a bank engaged in payments and reflexively apply more regulation than is really needed, or they can see a telecommunications company providing the same service and instinctively tend to regulate it more than is strictly necessary.
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*Information gaps in digital payments*

<i>There are few sources of business model and financial data</i>	Comparable data across deployments on customer usage, costs of build and operation, or financial performance is mostly lacking. As a result, most organizations have trouble justifying business cases to support new investments in services or platforms.
<i>It is hard to track effectively what is going on globally in the sector</i>	Credible, easily accessible information, which makes sense of rapidly unfolding events, is likewise in short supply. This leads to a failure to learn from experience. Much gets written on payments on the Internet, but most reports are not vetted for accuracy and most sites do not curate the information. <sup>73</sup> There is a clear bias in online blogs and social networks towards reporting success cases, leading to many instances of unfounded hype. <sup>74</sup>

*Capacity gaps in digital payments*

<i>Most providers face an endemic shortage of skills</i>	In most places, there is a shortage of the skills and experience necessary to design, deliver, and offer digital financial services, leading to delay and risk in project implementation. <sup>75</sup>
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73. *The Gaps in Digital Financial Inclusion Today*, DIGITAL FRONTIERS INST., <http://digitalfrontiersinstitute.org/the-gaps-in-digital-financial-inclusion-today/> (last visited Mar. 17, 2016).

74. As stated previously, there have been calls for regulators to assume a role in understanding demand for DFS to help address the lack of such credible information.

75. “Many financial services providers lack the technical knowledge or skills needed to successfully implement alternative delivery channels. This includes not only the skills to manage the detailed implementation of ADC projects, but also the skills needed to navigate a competitive and crowded marketplace and build a relevant ADC strategy.” See GERALDINE O’KEEFE ET AL., INT’L. FIN. CORP. ALTERNATIVE DELIVERY CHANNELS AND TECHNOLOGY HANDBOOK. 10 (2014), <http://www.ifc.org/wps/wcm/connect/5d99c500477262e89844fd299ede9589/ADC+Handbook++2014.pdf?MOD=AJPERES> (introducing the field of alternative delivery channels and its implementation).

<i>There are no formal training options for aspiring professionals</i>	Unlike banking, digital payments are not taught in universities. <sup>76</sup> Unlike professional fields like project management and financial analysis, there are no certified intensive training programs in digital payments. <sup>77</sup> Therefore, it is hard for new graduates to acquire the basic knowledge they need to function in a digital payments environment. Moreover, there are no structured ongoing training programs for more established digital payments professionals that allow them to remain current on the latest industry trends and ideas, or to develop more specific specialisms. <sup>78</sup>
<i>Most digital payments organizations are not truly client-centric</i>	Digital payments are often still seen largely as an offshoot of IT or technology departments because only they possess the industry knowledge to operate in what is seen as a highly technical field. <sup>79</sup> Senior marketing and product development positions are often filled with people with technology backgrounds. <sup>80</sup> As a result, most digital financial service providers are not built as customer-centric organizations. Their perceptions of customers' desires, attitudes, and needs are ill-informed, or at most informed by some quantitative market research, which conveys little nuance of the realities that people face and live in. <sup>81</sup> They often ignore what people do today and what would make them comfortable to switch to digital, and fail to see the opportunity from promoting digital financial services primarily as a mechanism for empowering people.

76. See Ignacio Mas & Kim Wilson, *The Course We Wish We Had Taken Years Ago*, TUFTS UNIV. (Dec. 3, 2015), <https://sites.tufts.edu/ibgc/ceme-senior-fellows/the-course-we-wish-we-had-taken-years-ago-ignacio-mas-kim-wilson/> (describing how college business courses do not prepare students to work with digital payment systems).

77. *Id.*

78. *Id.*

79. See Dirk Vater et al., *The Digital Challenge to Retail Banks*, BAIN & COMPANY (Oct. 17, 2012), <http://www.bain.com/publications/articles/digital-challenge-to-retail-banks.aspx> (noting a misconception that adding digital capabilities is a job for IT departments).

80. See Scott Brinker & Laura McLellan, *The Rise of the Chief Marketing Technologist*, HARVARD BUS. REV., July–Aug. 2014, <https://hbr.org/2014/07/the-rise-of-the-chief-marketing-technologist> (discussing the rise of technology in marketing and the movement to marketing executives with technological backgrounds).

81. See TANAYA KILARA & ELISABETH RHYNE, CUSTOMER-CENTRICITY FOR FINANCIAL INCLUSION, CGAP (June 2014), <https://www.cgap.org/sites/default/files/Brief-Customer-Centricity-for-Financial-Inclusion-Jun-2014.pdf> (documenting the need for financial services to become more customer-centric and what it means to be customer-centric).

### III. IS THERE AN EMERGING DIGITAL PAYMENTS PROFESSION?

The defining characteristics of a profession are:<sup>82</sup>

1. An identified public good that justifies the profession and the privileges it seeks to gain and preserve;
2. A body of skills and knowledge developed in order to serve that public good; and
3. A code of ethics and a professional body that seek to ensure those skills and knowledge are applied to the public good.<sup>83</sup>

The hallmark of professionals is that they owe their first duty to the public good (in the case of doctors the health of their patients, or for lawyers their duty to the courts and the administration of justice), their second duty to their clients, and only their third duty to their employer or themselves.<sup>84</sup>

Banks are highly professional organizations in the sense of being highly complex and typically having high standards of service delivery, but individual bankers usually do not identify as being members of a profession.<sup>85</sup> This makes sense because banking usually does not satisfy the three criteria of a profession set out above. In England in the 1980s, there were about 150,000 members of the Chartered Institute of Bankers, but by 2010 this number had fallen to no more than 22,000 members.<sup>86</sup> So it seems there has been a movement away from bankers as professionals. However, today there are initiatives afoot in the United Kingdom to reverse this trend.<sup>87</sup> In 2011, leading United Kingdom banks launched a Chartered Banker Professional Standard Board, with the intention of pursuing professional standards.<sup>88</sup> However, it notes that “the proportion of practitioners meeting professional standards is relatively low” and that there are currently only some 17,000

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82. See Everett C. Hughes, *Professions*, 92 DAEDALUS 655, 656–57 (1963) (providing a broad perspective on the nature of professions). See generally Sir William Blair, *Reconceptualizing the Role of Standards in Supporting Financial Regulation*, in RECONCEPTUALISING GLOBAL FINANCE AND ITS REGULATION 442 (Ross P. Buckley et al. eds., Mar. 2016) (discussing the importance of professionalism in banking and financial services).

83. Blair, *supra* note 82.

84. See C.S. Bellis, *Professions in Society*, 6 BRIT. ACTUARIAL J. 317, 318 (2000) (arguing that defining professions is not a simple task and noting that “[m]any varied occupational groups aspire to the label, and the definition, therefore, tends to be tailored to fit the characteristics of the group which is doing the defining.”); see also David Sciulli, *Professions Before Professionalism*, 48 EUR. J. SOC. 121, 143 (arguing that “professionals provide a place and purpose for themselves in civil society by elevating the discernment of lay patrons and supporters of their field of expertise”).

85. Paul Clarke, *The Perfect Investment Banker: Bland, Emotionless, Disloyal*, EFANCIALCAREERS (Aug. 24, 2015), <http://news.efinancialcareers.com/us-en/219202/the-perfect-investment-banker-bland-emotionless-disloyal>.

86. See *Banking Standards: Written Evidence from the Chartered Banker Institute*, UK PARLIAMENT (June 19, 2013), <http://www.publications.parliament.uk/pa/jt201314/jtselect/jtpubs/27/27iv36.htm> (documenting a fall in the number of banking professionals in the UK as a result of banking not being seen as a profession; little encouragement for individuals to become members of a professional body and “[a] general change in banking culture from stewardship to sales.”).

87. *Id.*

88. *Id.*

individual holders of a professional banking qualification from the institute.<sup>89</sup>

Upon reflection, the belief that bankers are not professionals (unless they happen to also be accountants or lawyers or whatever) is odd. Why should those entrusted with managing others' money not be professionals, subscribe to a code of conduct, or be subject to a disciplinary body with the ability to strip them of their license to practice? But we digress, any analysis of whether digital payments can be a new profession has to start with the recognition that banking is not a profession and neither are IT experts. So, given that payments are an outgrowth of these two industries, establishing a profession is probably not the place to start.<sup>90</sup>

What seems to be required in the payments space today are some broadly recognized educational pathways into payments. Professionalism may well be the desirable longer-term goal for digital financial services (DFS) experts, but the starting point should be proper education and training in digital payments.

While there are degree courses in universities that equip people to become bankers, such degrees typically do not address payments.<sup>91</sup> Thus, there is a need for university courses on payments in general and DFS specifically. These courses probably need to be situated in business schools and directed to both business and IT students.

As formal education develops to equip people for careers in payments, a logical next step would be establishing a voluntary code of conduct to which payments experts subscribe to complement the existing international standards to which payment systems should adhere.<sup>92</sup> There are a number of good reasons for such a code, including its potential formative influence over a rapidly developing specialism.<sup>93</sup>

The core element of payments as an area of expertise is that the focus of payments is on delivery of services to as wide a network of users and in as close to real time as is possible.<sup>94</sup> Payment providers seek to minimize risk and render highly affordable convenient services, principally electronically.<sup>95</sup> In contrast, banks assume risks in order to be able to profit from managing

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89. *Id.*

90. See Kathryn J. Lively, *Occupational Claims to Professionalism: The Case of Paralegals*, 24 *SYMBOLIC INTERACTION* 343 (2001), <http://www.jstor.org/stable/pdf/10.1525/si.2001.24.3.343.pdf> (studying perceptions of paralegals as a profession and showing how groups of non-professionals construct their own understanding of what it means to be professional and to demonstrate professionalism).

91. See, e.g., *Business Administration: Banking and Finance Concentration (BBF)*, PA. C. TECH, <https://www.pct.edu/catalog/majors/bbf.shtml> (last visited Mar. 17, 2016).

92. The BIS Committee on Payment and Market Infrastructure leads work on this in terms of international standards, and the World Bank has been busy rolling out payments legislation throughout developing countries, which sets standards for digital payments.

93. Blair, *supra* note 82.

94. See Jan Estep, *Same-Day ACH and the Future of Faster Payments*, *AM. BANKER* (Oct. 14, 2014), <http://www.americanbanker.com/bankthink/same-day-ach-and-the-future-of-faster-payments-1070471-1.html> (discussing consumer desire for faster payments services and how this drives providers to create better systems).

95. See Lori Ciavarella, *Best Practices for Online Payments Risk Management*, *BILLPRO* (Sept. 10, 2015), <https://www.billpro.com/best-practices-for-online-payments-risk-management/> (discussing best practices for online payment risk management).

them effectively.<sup>96</sup> Payments differ from banking principally in the perspective of their practitioners—each is a mindset, and the two mindsets differ markedly.

#### IV. CONCLUSION

We have sought to analyze the ways in which digital payment is emerging as its own field of expertise and how and why it differs from banking. The principal differences between the two fields are that banks prosper greatly from managing risk and little from network effects, whereas payments providers typically seek to avoid risk and prosper greatly from network effects.<sup>97</sup> This leads to fundamentally different outlooks between the practitioners in each field.

As payments become a more deeply researched issue, and its practitioners more specifically educated, the regulation of payments should begin to diverge increasingly from that of banking. Traditional banking regulation seeks to limit the risks banks assume, because when banks fail, the money they lose belongs to ordinary people, who vote. Therefore, the broader economic consequences of bank failure can be severe. So for both these reasons, politicians feel the need to bail out failing banks. Payments are traditionally regulated as part of banking regulation,<sup>98</sup> and often by the same regulatory institutions, but the imperatives that drive banking regulation should not drive payments regulation. A failure of a payments provider should not necessitate a bailout with public funds. While it may prove highly inconvenient to many people, it is difficult to imagine the failure of a payments provider causing financial market contagion in the manner that the collapse of Lehman Brothers did, for instance.

Payments are their own industry and need to be seen as being quite distinct from banking. This shift in perception could be transformative. One change that could flow from it is the broader recognition that payments deserve their own regulatory regime, finely attuned to the relatively minor risks that payments generate. Changes in banking in the past twenty years have been substantial, but it is during the next twenty years where the greatest changes and opportunities in payments are likely to arise.

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96. *What Are Merchant Services?*, FIDELITY PAYMENT SERVS., [http://www.fidelitypayment.com/resources/what\\_are\\_merchant\\_services](http://www.fidelitypayment.com/resources/what_are_merchant_services) (last visited Mar. 16, 2016).

97. See GREENACRE, *supra* note 5, at 14 (noting that an unreliable network infrastructure constrains use of mobile money).

98. See BESSIS, *supra* note 9 (explaining that banks are adverse to unnecessary risk-taking).